

The Reported Use of Medical Care Sources by Low-Income Inpatients and Outpatients

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A SAMPLE SURVEY at 15 municipal general hospitals in New York City in 1965 explored patterns of utilization by outpatients at medical care sources other than the clinics where they were interviewed (1). To assess the accuracy of respondents' reporting of hospitalizations and of their attendance at other outpatient departments, a verification substudy was designed to compare a subsample of respondent reports with hospital inpatient and outpatient records.

Broadly stated, the methodological issue was whether interview data which report utilization are accurate. This issue was narrowed for the verification study to two specific aims: (a) to determine how much discrepancy existed between data from interviews and from records, and (b) to determine whether discrepancies were linked to hospital auspices or to time elapsed between incidents and interviews, within a 12-month framework.

We assume that a prediction of 100 percent coincidence between records and interviews is not a suitable standard for evaluation of the results from a verification study, because it is unrealistic and unnecessarily stringent. What level of discrepancy (what percentage of over-reports or underreports and what ratio between

these two types of error) is analytically acceptable? Stated otherwise, under what circumstances would a given set of findings lead to the conclusion that interview data are not adequate as a basis for description of utilization by a given population?

The several answers to this question, each specified according to relevant circumstances, will probably be derived pragmatically rather than from social or statistical theory; that is, objective standards will be conventionally accepted only after conclusions, drawn from analyses of several verification studies in which specified levels of discrepancy from records were noted, prove useful for practical programs dealing with similar populations under similar conditions. The present verification study, hopefully, will contribute to the necessary accumulation of empirical findings.

Specifically, the verification study reported here was designed to measure overreporting (medical care incidents reported in interviews but not in records) and underreporting (medical care incidents reported in records but not in interviews). The study was concerned with types of places attended for inpatient or outpatient care, but not with length of stay or number of outpatient visits.

Background Considerations

To set the present study's design and analysis in context, the following discussion presents background conditions of the parent survey and reviews implications of related studies.

Financial eligibility requirements for admission to the municipal clinics, which were free

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in 1965, determined the social composition of the parent survey population. This population consisted primarily of patients from the lower socioeconomic stratum of the community; more than 90 percent were from families who would have qualified under 1966 criteria for New York State Medicaid. About two-thirds of the sample were Negro or Puerto Rican; 75 percent of the patients over 25 years old had not completed high school (1-3).

Each of these characteristics—income, ethnic minority, and education—had been significantly related to underreporting of inpatient incidents in a national study with a sample selected from known users; 15-20 percent of the incidents were not reported by persons low on a status variable, in contrast to less than 10 percent of underreports by high-status groups (4). Overreporting was not investigated.

However, two New York City studies undertaken to verify hospital utilization reports by outpatients at voluntary hospitals disclosed considerably less underreporting, notwithstanding that one sample consisted of welfare recipients (personal interview, January 27, 1966, with Margaret Olendzki, assistant professor of community medicine, Mount Sinai Hospital, New York City) and the other was also predominantly of low-income and minority group status (5). The results of these studies led to predictions of 5-10 percent underreporting in the present study. In both studies, overreporting was found to be approximately equal to underreporting in magnitude.

Some methodological differences between the national study of inpatient use (4) and the outpatient studies cited in the preceding paragraph may account for the greater confidence derived from the latter about using survey data as unbiased estimates of utilization from low-status patients. In the outpatient studies, the urban community setting may have provided greater medical and interview sophistication for all income levels, and the medical setting for interviews may have heightened the salience of utilization questions. The designs of the various studies also differed—the national study did not interview persons for whom reports of “no utilization” were valid.

In the present study, another aspect of the financial eligibility requirements was relevant.

Since registration in the municipal clinics was based on patients' statements of inability to pay for medical care, it was expected that survey respondents might fear to report use of fee-charging sources such as voluntary hospitals.

A recent study in New York City, however, indicated that there was less underreporting of fee-charging sources of medical care than of free care, with the explanation that the cost and perhaps the sheer procedures of paying bills improved recollection. In that study, the sample was drawn from a neighborhood rather than from a roster of current patients, and the persons in the sample were interviewed in their homes. The respondents had no structured reason to be motivated to underreport medical care for which they paid; in fact, they overreported fee-paid care more than free care. (This preliminary finding is one facet of a broad methodological study to compare two interview approaches to medical utilization—the records search included use of private physicians as well as institutions and number of visits as well as types of sources—according to the study director, Regina Lowenstein of the Columbia University School of Public Health and Administrative Medicine, February 4, 1966.)

Apart from formal eligibility requirements, in the present verification study there was also the possibility that the municipal outpatients would have underreported use of facilities of the same type as those which they currently attended for fear of informal professional disapproval of their “shopping around.” A study of outpatients, interviewed by physicians at a voluntary hospital in Boston, was concerned with this possibility; however, that verification substudy disclosed that underreporting of other clinics was less than 5 percent (6).

Another formal requirement (sometimes ignored) at the New York municipal hospitals was that each outpatient department register only persons whose residences were within its administrative district. This requirement might have led to underreporting of concurrent attendance at municipal clinics.

Because of the preceding considerations and because “type of hospital auspices” is central to the concept of patterns of utilization, hospital auspices (municipal or voluntary) was a key variable for analysis of the data reported here.

The concept of patterns of utilization also suggests a dimension of time-ordering of attendance at different types of medical sources. Therefore, the variable of time elapsed between incident and interview was examined.

With regard to time elapsed, a study which verified household interviews about use of ambulatory services under the Health Insurance Plan of Greater New York revealed that only 64 percent of the persons who received services in the past 2 weeks reported this fact accurately, in contrast to 81 percent of those with service in the past year. Possibly, the precision required to fit events into a brief span outweighed the usually positive effect of recency on reporting (7). Poor recall due to elapsed time might also result in overreporting—updating earlier events—as well as in underreporting.

Sample and Interview Factors

The verification study used a random sample of 100 completed interviews selected from the parent study, which included 2,648 completed interviews and 100 nonrespondents. The sample represented outpatient visits during 1 year to 15 hospitals; the visits were stratified by hospital and clinic specialty. The original sample design and a method for converting findings from visits to individual patients are detailed in an earlier report (8). The sample of patients for the present study was statistically representative of the larger sample according to sex, age, ethnic groups, time at current address, borough of residence, attendance records at the clinic where they were interviewed, and amount of reported use of inpatient and outpatient sources.

Private interviews had been conducted at the municipal outpatient clinics, immediately after the patients' medical visits, by university staff. The patients were told that the interviewers were not connected with the hospital staff, that participation was voluntary, and that their answers would be confidential. The interviews averaged about an hour; they included social and financial background, medical expenses, and attitudes toward health care. Factual data about use of the current outpatient department were taken from the clinic charts; therefore, this segment of utilization was not included in the verification study.

Utilization questions were asked early in the interviews; they were reviewed if later questions prompted further recollections. Other outpatient departments or emergency rooms, private physicians, special health facilities such as health centers, and inpatient stays were covered categorically. The interview approach was to ask about usual waiting time at each type of ambulatory care facility, an approach developed by Solon and associates (6). The respondent was then asked to name each type of facility attended in the past year, medical condition, months of earliest and latest attendance, whether fees were paid, and whether the care was satisfactory. For inpatient incidents, the introductory question was: "Have you (or has the patient) stayed overnight as a patient in a hospital in the last two years, that is since (month and year)?" A 1-year framework was used for verifying reports. A copy of the questionnaire appears in a report by Lerner and associates (8). In the present study, reports of attendance only at other outpatient departments and of hospitalizations were verified.

Selection of Hospitals for Study

Overreporting. The selection of hospitals where records could be checked for overreporting of both inpatient and outpatient services presented no difficulty. All places named by the sample respondents were included. A total of 27 hospitals were named at least once; they are shown by location, size of outpatient census, and type in table 1.

Underreporting. One approach to the study of underreporting is to select a sample with known utilization from institutional records and to followup with interviews. Subsequent analysis can refer only to the places from which the sample was drawn, and other sources that might have been attended by the same sample must be ignored (5,7).

The aims of the present study required a different strategy. After the sample had been interviewed, the attempt was to verify reports of "none" as well as of incidents at any of the places named. The large number of urban medical institutions poses a formidable verification task. Some selection of institutions is necessary, and different approaches have been used in other studies. In the New York Hospital welfare

client outpatient study and in the study reported by Torrens and Yedvab (5), the investigators limited the sources to be checked by defining a geographic neighborhood, somewhat arbitrarily, as within an accessible radius around the hospital in which the original sample had been interviewed. In the present study, however, patients were interviewed at 15 widely dispersed hospitals.

New York City has about 150 hospitals, but use of some is clearly concentrated by subgroups in the community, based on factors such as income and geographic accessibility. For the present study, it was reasoned that a limited number of hospitals could be systematically identified which were typically attended by the population from which the outpatient study sample was drawn, and that for a representative subsample underreporting was most likely for this group of hospitals.

All 62 New York City hospitals mentioned by

Table 1. Location, size of outpatient census, and types of hospitals where records were checked for overreporting and underreporting, New York City

Location, outpatient census, and type	Study of over-reporting (27 hospitals)	Study of under-reporting (25 hospitals)
Borough:		
Manhattan.....	10	12
Bronx.....	5	5
Brooklyn.....	10	6
Queens.....	2	2
Size of outpatient census ¹ (visits):		
1,000-25,000.....	2	2
25,000-100,000.....	8	5
100,000 or more.....	12	14
Not obtained ¹	5	4
Type of hospital and auspices:		
Municipal general ²	12	11
Voluntary general.....	³ 10	⁴ 10
Voluntary specialized.....	⁵ 4	⁶ 4
Proprietary.....	1	0

¹ Source: reference 9. Size of outpatient census is shown as "not obtained" for specialized and proprietary hospitals, which are excluded from the source document.

² Includes 1 with ambulatory care services only.

³ Includes 1 Catholic hospital.

⁴ Includes 2 Catholic hospitals.

⁵ Includes 2 eye and ear hospitals, 1 joint disease hospital, and 1 chronic disease hospital.

⁶ Includes 3 eye and ear hospitals and 1 women's hospital.

patients in a random half of the parent study sample (1,310 interviews) were therefore listed. One-third of these hospitals had been mentioned only once; the others were listed in order of the number of times use of outpatient departments was mentioned, and separately for inpatient use. The same places were named most frequently for both types of service (except for one ambulatory care unit with no inpatient facilities) with slight variations in order. Of the 62 hospitals, 25 mentioned most frequently were selected to permit comprehensive coverage and careful record checking within feasible limits of time and cost. The 25 hospitals represented 64 percent of outpatient incidents reported by the parent study sample (244 incidents) and 80 percent of inpatient incidents (396 incidents). Among the 100 interviews in the subsample for the present study, the 25 hospitals accounted for 70 percent of the outpatient incidents and 85 percent of the inpatient incidents reported.

The 25 hospitals are described in table 1. Although some of the same hospitals are listed in both columns of table 1, the rationale and procedure were different for checking overreporting and underreporting. At the first group of 27 hospitals, only the names of patients who mentioned an incident were sought in the records of the appropriate division. At the second group of 25 hospitals, the names of all 100 patients were searched in outpatient and inpatient records.

Field Procedures

The fieldwork was done in 1966. The study was explained to the administrator of each hospital and cooperation was granted, with variations in procedural details. At six hospitals only one name had to be checked for overreporting, and this was done by mail. Four fieldworkers, selected from the study's coding staff and trained by the field director of the parent study, were sent to the remaining hospitals. At three hospitals, the administrators requested that their clerical staffs do the record checking; a fieldworker explained and observed the work. These three hospitals were rated highest for up-to-date records integrated across all hospital divisions and use of mechanized record systems. In other hospitals where record-searching sys-

tems were less efficient, staff could not be spared for the checking task.

In a verification study, the sources of criterion information at the selected hospitals are assumed to be comparably accurate and accessible for working purposes. However, this assumption must be open to scrutiny. The fieldworkers recorded their systematic observations of record systems and staff work which would support or question the accuracy of the records for the purposes of this study. These observations are considered in the assessment of findings.

An identification card was prepared from interview data for each patient in the subsample. The following items helped to identify records of the patients despite name changes, common misspellings, and changes of address, and to exclude records for other persons with the same name: (a) first, last, and middle names and possible alternate spellings, (b) married women's maiden names and last names of children if different from mother's, (c) mother's and father's first and last names, (d) current address, length of residence, addresses for 3 years before interview, (e) current employment and length of time and past employment, (f) ages of children, to check whether hospital stays for delivery had not been reported, (g) date and place of birth, (h) race, (i) date of interview, and (j) welfare department status and case number, if any.

Outpatient department registration cards, inpatient admission slips, and medical charts were used to locate subsample members and to record dates of utilization. If necessary, medical charts for more than one person of similar name and age in the same hospital were examined to ascertain precisely whether a sample patient had been located. Rather than limit the record search to the 1 year about which respondents had been asked, a 2-year period before each interview was examined, in order to promote comprehensive record checking and to aid in interpretation of findings, if errors were due to uncertainty about dates.

Definitions, Criteria, and Units of Analysis

For this analysis, an inpatient incident is defined as one or more nights in a hospital. Discontinuous stays at the same hospital are counted as separate incidents. An outpatient

incident is defined as one or more visits to a hospital outpatient department.

The criteria for an accurate report are (a) the hospital named could be identified and (b) a discharge date, or latest visit, was recorded within 12 months before the interview. An interview answer of "none" is considered accurate if the patient's name was not found in the records for the 1-year period at any of the hospitals checked for underreporting.

There are conceptual alternatives for the presentation of data. The unit of measurement may be persons or reports. If "persons" is used, patients are classified as users or nonusers. If "reports" is used, two or more incidents referring to one person are counted separately. Thus, the denominator for measuring discrepancies is likely to be larger on the basis of incidents than on the basis of patients. To permit application to different interests, the findings are presented in terms of both incidents and number of persons.

Findings

Inpatient utilization. The percentage of patients with some inpatient incidents is shown in table 2. According to the interviews, 69 percent of the 100 respondents had had no inpatient incidents during the past year and 31 percent had had one or more incidents. According to hospital records, 72 percent had had no incidents and 28 percent had had some incidents. By both interviews and records, 67 percent of the patients were classified as nonusers and 26 percent were classified as users; thus, reported utilization status was verified for a total of 93 percent. Of the total 7 percent for whom interviews and records did not coincide on

Table 2. Percentage of patients with some or no inpatient incidents, according to interviews and hospital records

Interviews	Hospital records		Percent of total patients (N=100)
	No incidents (percent)	Some incidents (percent)	
No incidents-----	67	2	69
Some incidents-----	5	26	31
Total patients--	72	28	100

whether incidents occurred, a greater number were overreporters (5 percent) than underreporters (2 percent).

The number of inpatient incidents per person, according to hospital records and interviews, is shown in table 3. The main diagonal shows the number of patients for whom the reported number of incidents was the same as in the records. For all other patients, the difference in number of incidents between records and reports was only one. Above the main diagonal are the five underreporters (the two shown in table 2 who reported "none" and three who reported one less incident than was found in the records). Below the main diagonal are six overreporters (five shown in table 2 with no recorded incidents and one for whom only one incident was recorded). Thus, a total of 38 incidents were found in hospital records and

39 were reported in interviews—a difference of only one inpatient incident.

The data were analyzed further to explore whether two factors integral to the concept of patterns of utilization, time elapsed and hospital auspices, were related to the number and direction of discrepant reports.

As shown in table 4, approximately equal numbers of inpatient incidents occurred before and after a 6-month cutoff point within the framework of 12 months before the parent survey interview. This result was found in both sources of data—hospital records and interviews. Verified incidents, underreports, and overreports, were similarly distributed by time elapsed. Although the 6-month classification may be too broad for some purposes, it is suitable for most analyses of patterns of utilization. In this study, incidentally, the dates of all veri-

Table 3. Number of inpatient incidents per person and total number of incidents, according to interviews and hospital records

Interviews	Hospital records (incidents per person)					Total patients	Total incidents
	0	1	2	3	4		
Number of incidents per person:							
0-----	67	2	0	0	0	69	0
1-----	5	19	1	0	0	25	25
2-----	0	1	2	1	0	4	8
3-----	0	0	0	1	1	2	6
4-----	0	0	0	0	0	---	--
Total patients-----	72	22	3	2	1	100	39
Total incidents-----	0	22	6	6	4	---	38

Table 4. Time elapsed between incidents and interviews¹ and auspices of hospitals where inpatient incidents occurred, by number of inpatient incidents verified and not verified

Time elapsed and hospital auspices	Verified (a)	Not verified		Total incidents			
		Under-reports (b)	Over-reports (c)	Records (a + b)		Interviews (a + c)	
				Number	Percent	Number	Percent
Less than 6 months-----	17	2	3	19	50.0	20	51.2
6-12 months-----	16	3	3	19	50.0	19	48.8
Total-----	33	5	6	38	100.0	39	100.0
New York City municipal-----	26	4	5	30	78.9	31	79.5
Voluntary-----	7	1	1	8	21.1	8	20.5
Total-----	33	5	6	38	100.0	39	100.0

¹ Time was calculated from discharge date in hospital records for verified and underreported incidents; for over-reported incidents the comparison was between month reported and date of interview.

Table 5. Percentage of patients with some or no outpatient incidents, according to interviews and hospital records

Interviews	Hospital records		Percent of total patients (N=99)
	No incidents (percent)	Some incidents (percent)	
No incidents.....	79	5	84
Some incidents.....	7	9	16
Total patients..	86	14	100

fied reports were within 1 month of the recorded date.

Table 4 also shows that about four-fifths of the inpatient incidents occurred at New York City municipal hospitals (78.9 percent based on records and 79.5 percent based on interviews). Verified reports, underreports, and overreports were distributed similarly by hospital auspices.

Outpatient utilization. In the interviews, 17 patients reported some outpatient incidents, that is, one or more visits during the past year to hospital outpatient departments in addition to the institution where they were interviewed. Two reported incidents could not be checked because they referred to a hospital which was subsequently closed and its records were in dead storage (one of these was the only incident reported by the patient), and these incidents are excluded from the following analysis.

Although the marginal classifications of the sample as users or nonusers by interviews and records correspond closely, thus assuring the validity of aggregate results (for example, 16

percent had some incidents according to interviews and 14 percent according to records), table 5 shows that for 12 percent of the patients (7 percent overreports and 5 percent underreports) interview reports and hospital records did not agree. The number of overreports (7 percent) thus constitutes a large component of the small number (16 percent) who reported any use. This kind of respondent bias is counter to expectation of underreporting; it deserves further research. Case analysis of the outpatient overreporters in the present study suggests that institutional rather than subjective factors explain these results, as discussed later.

Table 6 shows that the number of persons with multiple incidents and the total number of incidents are also higher from interviews than from records. Sixteen patients reported 21 outpatient incidents whereas 14 patients (only one with multiple incidents) had a total of 17 incidents according to records. Six patients underreported one incident apiece, one patient overreported two incidents, and eight patients overreported single incidents.

In table 6, the net difference of four incidents resulted from 10 overreports and six underreports; however, the main diagonal includes one person who had reported one outpatient department where his name was not found and had not reported one outpatient department where his name was found. Therefore, table 7, which deals with verification of outpatient incidents, shows 11 overreports and seven underreports.

According to hospital records the majority of outpatient incidents occurred within 6 months of the interview (table 7). Interview errors more

Table 6. Number of outpatient incidents per person and total number of incidents, according to interviews and hospital records

Interviews	Hospital records (incidents per person)					Total patients	Total incidents
	0	1	2	3	4		
Number of incidents per person:							
0.....	78	5	0	0	0	83	0
1.....	6	6	0	0	0	12	12
2.....	1	2	0	0	0	3	6
3.....	0	0	0	0	1	1	3
4.....	0	0	0	0	0		
Total patients.....	85	13	0	0	1	99	21
Total incidents.....	0	13	0	0	4		17

often referred to earlier rather than recent incidents. This tendency was slight, however, and it applied to both overreports and underreports; thus, on balance, the percentage of incidents within 6 months was similar when based only on records (64.7 percent) to that reported in interviews (61.9 percent).

The distribution of outpatient incidents verified according to hospital auspices—municipal or voluntary—differed considerably in magnitude but not in direction (table 7). Among the incidents found in records, 23.5 percent were at municipal hospitals, as opposed to 38.1 percent of the incidents reported.

The overall discrepancy is due to the relatively large number of overreports of incidents at municipal hospitals (six overreports in contrast to two underreports and two verified reports at municipal hospitals). By contrast, voluntary hospital outpatient departments were named in overreports to the same extent (five incidents) as they appeared in underreports, and a larger number of voluntary hospital incidents were verified as reported (eight incidents). This finding indicates that motivations to underreport fee-charging sources by municipal outpatients, as suggested earlier, did not apply in general. However, two organizational factors discussed later—completeness of records and administrative distinctions between records of inpatient, outpatient, and emergency divisions within a hospital—may affect the possibility of verifying reported incidents at voluntary and municipal hospitals differently, especially with regard to outpatient department incidents.

Discussion

Two major assumptions were necessary for the verification study: (a) that coverage of institutions was adequate for the study of underreporting and (b) that records at the institutions selected were adequate to reveal both underreporting and overreporting.

Concerning the first assumption, fieldwork revealed that almost 10 percent of the patients in the subsample had attended one of the hospitals on the list before or after (in the interim between the interview and the verification fieldwork) the year covered by interview questions. These incidents were not included in the re-

ported findings, but they are useful supporting data to provide assurance that the method of selecting hospitals was sound. The adequacy of the number of hospitals where records were checked is necessarily moot.

As for the second assumption, a qualitative assessment of record searching at the hospitals was made, based on written observations of the fieldworkers. Considerable variation was noted among the hospitals in the types of record systems and in the ease of verifying from comprehensive accessible records, which covered all hospital subdivisions over a span of years. Generally, inpatient records were more complete and well-organized than outpatient records. Currently, all the hospitals are endeavoring to improve record systems (use of unit records, Soundex filing, cross-indexing of patients' names and chart numbers, and mechanization of record searching). These efforts and the cooperation of all the administrators in this study indicate increasing awareness of the relevance of records for research in health care behavior, as well as for organizational efficiency and optimum health service for the patient.

The fieldworkers gave the highest ratings to three large voluntary hospitals where all or most of the features mentioned had been applied to all active records. These workers encountered the most difficulty at four smaller hospitals (two municipal and two voluntary) where none of the features was systematically in force. Specific problems such as misfiled cards or charts or inadequate identifying details were rare and localized. More time and more fieldworkers were assigned to record checking at these institutions to compensate for such problems. However, complete assurance about the accuracy of the criterion is clearly unrealistic.

This caution is indicated, superficially perhaps, by the use of the term "verification" rather than "validation" throughout this report. While it may be desirable to devise quantitative measures of the accuracy of the source materials to qualify the findings, such apparent precision would not be warranted with the observational materials at hand. Nor would such a procedure alter the conclusions to the practical question underlying this study—the relative effectiveness under current conditions of interviews and

Table 7. Time elapsed between incidents and interviews ¹ and auspices of hospitals where outpatient incidents occurred, by number of outpatient incidents verified and not verified

Time elapsed and hospital auspices	Verified (a)	Not verified		Total incidents			
		Under-reports (b)	Over-reports (c)	Records (a + b)		Interviews (a + c)	
				Number	Percent	Number	Percent
Less than 6 months.....	8	3	5	11	64.7	13	61.9
6-12 months.....	2	4	6	6	35.3	8	38.1
Total.....	10	7	11	17	100.0	21	100.0
New York City municipal.....	2	2	6	4	23.5	8	38.1
Voluntary.....	8	5	5	13	76.5	13	61.9
Total.....	10	7	11	17	100.0	21	100.0

¹ Time was calculated from discharge date in hospital records for verified and underreported incidents; for overreported incidents the comparison was between month reported and date of interview.

record searching to elicit data about medical utilization for a given group.

As difficult as they are to evaluate, when the findings and the field observations are considered in the light of the concerns of this study they lead to the conclusion that a high degree of assurance may be placed on respondents' reports of inpatient and outpatient utilization. This conclusion applies to analysis of the level of utilization (number of incidents) for the group as a whole and to analysis of general patterns of utilization (types of institutional sources and time of use) by individual patients.

This study's low-income population used a greater amount of inpatient than of outpatient sources, in addition to use at the site where patients were selected, and accuracy of reporting inpatient use was somewhat greater. Nevertheless, the general conclusions apply to both types of use. If allowance is made for the fact that not all hospitals geographically accessible to the subsample were checked for underreporting, less than 10 percent of the municipal hospital outpatient respondents neglected to report an incident during the past year; the small percentage of underreporting was balanced by overreporting for the entire group. This finding is roughly the same as that of Torrens and Yedvab (5) and of the New York Hospital welfare client outpatient study. Solon and associates (6) noted that only 3 percent of their subsample of outpatients did not report other outpatient department use in a community with more con-

centrated use of a few hospitals. Their study in Boston checked records at four hospitals which accounted for 64 percent of reported use in addition to the interview outpatient department; overreporting was not checked.

The present study's data do not indicate that fee-charging hospitals were systematically underreported. Several explanations are possible for the unexpected extent of overreporting. However, analysis of the cases in this study suggests one explanation which is particularly interesting because it implies that a fine line must be drawn between what is interpreted as interview error and what is an accurate reflection of experiences that are classified differently by respondents, hospital administrative personnel, or researchers (10). Specifically, inpatient and outpatient services were treated as separate medical sources in this study, but administrative procedures vary among hospitals for registering patients in and between these departments.

Emergency room procedures may blur the line between inpatient and outpatient care, especially for incidents which result in hospitalization. Emergency room records are notoriously difficult to use for verification purposes, and this was not attempted in the present study. Torrens and Yedvab concluded that "Unfortunately, the record system for this important medical facility [ER] is uniformly appalling" (5a,b). In the present study, however, considerable use of emergency rooms was mentioned

in interviews. The point to note is that one-third of the outpatient department overreports were cited together with accurate inpatient reports at the same institution; it is likely that such admissions were handled administratively through the emergency room or the outpatient department without requiring an outpatient department chart entry.

Emergency room visits may also account for some inpatient overreporting. The interview question referred to "at least one night in a hospital"; emergency room visits are likely to be made at night and last a few hours.

Conclusion

Behavioral and attitudinal analysis of medical utilization depends largely on personal interviews for data collection about the facts and responses to use of health care services.

The evidence from this study leads to a positive answer to the general question of whether interview data obtained from urban low-income patients at one type of medical source can be relied on for analysis of their patterns of utilization at other places. Of particular note are the conditions which obtained in this study and others to which this conclusion applies: (a) the sample consists entirely of persons who are current patients at one source, which is likely to be the main source for many of them, (b) interviewing is conducted in a medical setting, which heightens the salience of utilization questions, and (c) analysis of patterns of utilization relies on variables which are of behavioral significance but do not require precision in reporting numbers and dates of visits.

Summary

A methodological study was undertaken to explore the magnitude and type of discrepancies between data from hospital records and from survey interviews about inpatient and outpatient incidents during a 12-month period. The sample consisted of low-income outpatients who were interviewed at 15 municipal general hospitals in New York City in 1965.

Substantive concern with the concept of patterns of utilization led to a broad rather than a detailed definition of incidents—sources used rather than number of visits—and suggested the following as relevant attributes of incidents for analysis: (a) hospital auspices (municipal

or voluntary) and (b) time of use (more than or less than 6 months before interview).

The verification study design required selection among the many hospitals in the city to check possible underreporting as well as contact of all hospitals named by the respondents to check possible overreporting.

The following were major findings for inpatient utilization. Incidents or lack of incidents were reported accurately by 93 percent of the sample. Overreporting exceeded underreporting in terms of persons who had any inpatient incidents and the number of incidents. Hospital auspices and time of use were unrelated to verification status of inpatient incidents.

For outpatient incidents, major findings consisted of the following. Whether or not incidents occurred was reported accurately by 88 percent of the patients. Overreporting, especially in terms of number of incidents, exceeded underreporting. Unverified outpatient incidents were more likely to refer to more than 6 months past than to less than 6 months, but overreports and underreports were almost balanced. Outpatient incidents classified by hospital auspices were more often overreported for municipal hospitals than for voluntary hospitals.

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Lower Daily Calorie Allowances

Decreasing physical activity and a corresponding tendency to overweight on the part of many Americans have led the Food and Nutrition Board of the National Research Council to lower its recommended daily calorie allowances for adults.

The Board's recently issued "Recommended Dietary Allowances" reduces the calorie requirement for the "reference man" (22 years old, 154 pounds, and moderately active) to 2,800 calories daily. The previous report, issued in 1964, recommended 2,900 calories. Similarly, the suggested intake of the "reference woman" (22 years old, 128 pounds, and moderately active) was lowered from 2,100 to 2,000 calories per day.

The Board's suggested calorie and nutrient allowances are not inflexible standards, but are intended as general guides for planning food supplies for groups of people. They are used by the Armed Forces, schools, hospitals, summer camps, prisons, and other public and private institutions.

The revised publication includes tabulated levels of daily dietary nutrient intakes judged to be adequate for maintenance of good nutrition. The allowances are calculated for 24 age categories of men, women, children, and infants. Separate allowances are given for pregnancy and lactation. More age categories are used for children and infants in the revision to provide a more accurate picture of the effect of growth on nutrient requirements. An appendix includes standards of other countries.

The levels recommended represent the consensus of leading medical nutritionists, biochemists, and food scientists. The nutrient levels are sufficiently above average physiological requirements to cover individual variations among most Americans. Failure to meet these levels does not automatically indicate malnutrition, nor would the requirements necessarily be adequate to meet individual problems posed by disease, traumatic stresses, or prior dietary inadequacies. In reducing the suggested calorie levels, the Board emphasized that after age 22 the average adult should begin to reduce his calorie intake. By age 22 physical maturity has usually been reached, and further lateral growth is often in the form of increased fat deposits.

Recommended levels are given for seven nutrients not tabulated in the 1964 edition: vitamin E, vitamin B₆, vitamin B₁₂, folacin, phosphorus, iodine, and magnesium. Sufficient information for calculating the requirements for these nutrients has only recently become available. As in previous editions of the report, allowances are also tabulated for calories, protein, calcium, iron, vitamins A and D, thiamin, riboflavin, niacin, and ascorbic acid.

Copies of the "Recommended Dietary Allowances," publication No. 1694, are available at \$1.75 each from the Printing and Publishing Office, National Research Council, 2101 Constitution Avenue, NW., Washington, D.C. 20418.